AMENDMENTS

In the drawings:

Please substitute the enclosed 22 sheets of formal drawings (Figures 1 - 23) for the drawings as filed.

In the claims:

Please cancel previously allowed claims 56 - 79, 83 - 86, 96 - 107 and 121 - 134, without prejudice, and insert new claims 135 - 176.

135. A compound represented by the nominal formula:

LiFe_{1-y}M_yPO₄,

wherein M is selected from the group consisting of Be, Mg, Ca, Sr, Ba, and mixtures thereof; and 0 < y < 1.

736. A compound of Claim 135, wherein $0 < y \le 0.5$.

- 137. A compound of Claim 136, wherein $0 < y \le 0.2$.
- 138. A compound of Claim 137, wherein $0 < y \le 0.1$.
 - A compound of Claim 135, wherein M is selected from the group consisting of Mg, Ca, Ba, and mixtures thereof.
- 140. A compound of Claim 139, wherein M is a mixture of metals selected from the group consisting of Mg, Ca, and Ba.
- 141. A compound of Claim 140, wherein M is Mg.

10 m

- A compound of Claim 141, wherein said compound is represented by the nominal formula LiFe_{1-y}Mg_yPO₄; and $0 < y \le 0.5$.
- 143. A compound of Claim 142, wherein $0.2 \le y \le 0.5$.
- 144. A compound of Claim 143, wherein said compound is represented by the nominal formula LiFe_{0.8}Mg_{0.2}PO₄.

10 145.

- A compound of Claim 141 wherein 0.1 < y < 0.2.
- 146. A compound of Claim 141, wherein $0 < y \le 0.1$.
- 147. A compound of Claim 146 having the nominal formula LiFe_{0.9}Mg_{0.1}PO₄.
- 148. A compound of Claim 140, wherein M is Ca.
- 149. A compound of Claim 148 having the nominal formula LiFe_{1-y}Ca_yPO₄, wherein $0 < y \le 0.2$.
- 150. A compound of Claim 149 having the nominal formula LiFe_{0.9}Ca_{0.1}PO₄.
- 151. A compound of Claim 149 having the nominal formula LiFe_{0.8}Ca_{0.2}PO₄.

VO 152

- A compound of Claim 135 which has an olivine structure.
- -153. An electrode comprising a compound of Claim 135.
- 154. An electrode comprising a compound of Claim 139.
- 155. An electrode comprising a compound of Claim 144.

- 156. An electrode comprising a compound of Claim 147.
- 157. An electrode, comprising:
 - (a) a binder;
 - (b) an electrically conductive darbonaceous material; and
 - (c) an active material having the nominal formula LiFe_{1-y}M_yPO₄, wherein M is selected from the group consisting of Be, Mg, Ca, Sr, Ba, and mixtures thereof; and 0 < y < 1.
- 158. An electrode of Claim 157, wherein $0 \le y \le 0.2$.
- 159. An electrode of Claim 158, wherein said active material has the nominal formula LiFe_{1-y}Mg_yPO₄.
- 160. An electrode of Claim 159, wherein said active material has the nominal formula LiFe_{0.9}Mg_{0.1}PO₄.
- 161. An electrode of Claim 159, wherein said active material has the nominal formula LiFe_{0.8}Mg_{0.2}PO₄.
- 162. An electrode of Claim 157, wherein said active material is a single phase compound having the nominal formula LiFe_{1-y}Ca_yPO₄.
- 163. An electrode of Claim 162, wherein said active material has the nominal formula LiFe_{0.9}Ca_{0.1}PO₄.
- 164. An electrode of Claim 162, wherein said active material has the nominal formula LiFe_{0.8}Ca_{0.2}PO₄.
- 165. An electrode of Claim 157, wherein said active material has an olivine structure.

- 166. A lithium battery, comprising:
 - (a) a first electrode comprising an active material represented by the nominal formula LiFe_{1-y}M_yPO₄, wherein M is selected from the group consisting of Be, Mg, Ca, Sr, Ba, and mixtures thereof; and 0 < y < 1;
 - (b) a second electrode which is a counter-electrode to said first electrode; and
 - (c) an electrolyte between said electrodes.
- 167. A lithium battery of Claim 166, wherein said first electrode is a cathode, and said second electrode is an insertion anode.
- 168. A lithium battery of Claim 167, wherein said second electrode comprises a metal oxide, metal chalcogenide, carbon, graphite, or a mixture thereof.
- 169. A lithium battery of Claim 166, wherein $0 < y \le 0.2$.
- 170. A lithium battery of Claim 169, wherein said active material has the nominal formula LiFe_{1-v}Mg_vPO₄.
- 171. A lithium battery of Claim 170, wherein said active material has the nominal formula LiFe_{0.9}Mg_{0.1}PO₄.
- 172. A lithium battery of Claim 170, wherein said active material has the nominal formula LiFe_{0.8}Mg_{0.2}PO₄.
- 173. A lithium battery of Claim 169, wherein said active material is a single phase compound having the nominal formula LiFe_{1-y}Ca_yPO₄.
- 174. A lithium battery of Claim 173, wherein said active material has the nominal formula LiFe_{0.9}Ca_{0.1}PO₄.

- 175. A lithium battery of Claim 173, wherein said active material has the nominal formula LiFe_{0.8}Ca_{0.2}PO₄.
- 176. A lithium battery of Claim 166, wherein said active material has an olivine structure.